

Invention Disclosure Form (Dell Confidential)

DC-05727

BEST AVAILABLE COPY

Title:

**MAPPING HID PROTOCOL ONTO SMBUS FOR TOUCH PAD /
KEYSCAN INTERFACE.**

INVENTORS

Ronald D Shaw (Dell), Ron_Shaw@dell.com, (512) 728-1922

Line of Business: Advanced Client Engineering

Reporting Director/VP: Kevin Kettler

Home Phone: 512-249-5477

Manager: Richard Schuckle

Reporting VP/GM: Jeffrey Clarke

Citizenship: United States

RELEVANT DATES & DISCLOSURES

Submission Date: 7/7/2003
Conception Date: 5/28/2003
Invention first described in: Presentation 05/28/2003

First offer for sale: TBD
First production use/ship date: TBD

**Anticipated offer for sale,
production use, or ship date:** TBD

Disclosure outside of Dell? Yes

If yes, to whom? Intel/NSC/SMsC/Renasas/Alps/Synaptics

Was the disclosure made under an NDA? Yes

TECHNOLOGY

Product Line: Portables
Project Code Name(s): CY 2005 Notebooks
Relevant Standards:

WITNESSES

Witness 1: Thomas Pratt
Witness 2: William Sauber

file:///C:/temp/lid_pdf/DC-05727_OC.htm (1 of 2) [7/7/2003 9:23:13 AM]

BEST AVAILABLE COPY**THE PROBLEM**

Currently the keyboard scans for portables is done by the EC on the motherboard. There is movement in the industry to move the keyboard scanning to the touchpad. This will reduce the number of signals begin transmitted from the palm rest down to the motherboard.

There is also a movement in the industry to develop secure keyboards and secure touchpad for portable computers. The current proposal uses a set of registers which simulate a HID device on the LPC bus similar to the HID devices used on USB.

To minimize the amount of silicon on the motherboard, a simple protocol is needed to allow HID messages to be transmitted from the touchpad to the motherboard.

PRIOR SOLUTIONS/EXISTING TECHNOLOGY

Currently, HID packets are used for USB keyboards and pointing devices.

PROPOSED SOLUTIONS

The touchpad microcontroller will convert the keyboard scan and pointing device inputs into standard HID packets. These HID packets will be embedded into SMBus messages which is passed to the motherboard and transferred into the HID registers which are visible to the firmware and/or software.

By directly mapping HID packets into SMBus messages, a reduction in complexity on the motherboard can be realized. A simple state machine can transfer successful SMBus messages directly into the HID registers.

FIGURES